

CLAIMS

I Claim:

1. A digital video decoding system for receiving packetized video data representing programs conveyed on a plurality of video channels, comprising:

5 a plurality of buffers for storing encoded video data representing images of video programs conveyed on a corresponding plurality of video channels wherein an individual buffer, corresponding to an individual video channel, stores sufficient encoded video data to prevent an underflow condition following switching to decode a program conveyed on said individual video channel;

10 a processor for initiating switching to decode a program conveyed on a selected one of said plurality of video channels in response to a user channel selection input; and,

15 a decoder for decoding encoded video data received from one of said plurality of buffers corresponding to said program conveyed on said selected video channel as determined by switching initiated by said processor.

2. The system according to claim 1, wherein, in response to said processor initiated switching, said decoder employs splicing constraints in switching to decode said program conveyed on said user selected channel.

20 3. The system according to claim 2, wherein said splicing constraints comprise at least one of (a) beginning decode of program data on said user selected channel at an MPEG compatible anchor I-frame of said program data, (b) discarding B-frames in a GOP of program data on said user selected channel prior to beginning decoding, and
25 (c) switching from decoding a currently viewed program to decode program data on said user selected channel immediately prior to a GOP anchor frame of said currently viewed program.

30 4. The system according to claim 1, wherein said plurality of buffers includes a designated buffer for each channel that may be decoded by said decoder.

5. The system according to claim 1, including a plurality of tuners enabling the storage of encoded video data from a first tuner in a first buffer and contemporaneous decoding of encoded video data derived from a second tuner.
- 5 6. The system according to claim 1, wherein said decoder, in decoding said encoded video data received from one of said plurality of buffers, re-orders data to provide decoded data in a different image sequence.
- 10 7. The system according to claim 1, including a predictive processor for predicting a next video channel to be selected by a user and for directing received encoded video data representing a program conveyed on said next video channel to one of said plurality of buffers.
- 15 8. The system according to claim 7, wherein said predictive processor predicts said next video channel in response to at least one of, (a) user channel viewing history characteristics, (b) user favored program/channel criteria, (c) user interface navigation commands, and (d) user interface sensory input data.
- 20 9. The system according to claim 8, wherein said viewing history characteristics comprise at least one of, (a) channel frequency of use data, and (b) channel last time of use data.

10. A digital video decoding system for receiving packetized video data representing programs conveyed on a plurality of video channels, comprising:

5 a plurality of buffers for storing encoded video data representing images of video programs conveyed on a corresponding plurality of video channels;

 a predictive processor for predicting a next video channel to be selected by a user and for directing received encoded video data representing a program conveyed on said next video channel to one of said plurality of buffers;

 a processor for initiating switching to decode a program conveyed on said next video channel in response to a user channel selection input; and

10 a decoder for decoding encoded video data received from one of said plurality of buffers corresponding to said program conveyed on said next video channel as determined by switching initiated by said processor.

11. The system according to claim 10, wherein said predictive processor predicts

15 said next video channel in response to at least one of, (a) user channel viewing history characteristics, (b) user favored program/channel criteria, (c) user interface navigation commands, and (d) user interface sensory input data.

12. The system according to claim 11, wherein said viewing history characteristics comprise at least one of, (a) channel frequency of use data, and (b) channel last time of use data.

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13. A method for sequentially displaying a plurality of video programs each respectively conveyed on a corresponding one of a plurality of video channels, said method comprising:

- 5 simultaneously storing encoded video data representing images of said plurality of video programs using at least one memory device, wherein sufficient encoded video data is stored for each of said plurality of video programs to prevent an underflow condition following play-out thereof from said at least one memory device;
- 10 detecting a user input;
- 15 initiating switching to decode a selected one of said plurality of video programs in response to said user input; and,
- 20 decoding said stored encoded video data corresponding to said selected one of said plurality of video programs.

14. The method of claim 13, wherein said step of initiating switching comprises employing splicing constraints in switching to decode said selected one of said plurality of video programs.

15. The method of claim 14, wherein said step of employing splicing constraints comprises at least one of (a) beginning to decode encrypted video data corresponding to said selected video program at an MPEG compatible anchor I-frame thereof, (b) discarding B-frames in a group of pictures of video data corresponding to said selected video program prior to beginning decoding, and (c) switching from decoding a currently viewed program to decode said selected video program immediately prior to a group of pictures anchor frame of said currently viewed program.

16. The method of claim 13, further comprising:
 - simultaneously receiving said corresponding plurality of video channels using a plurality of tuners;
 - storing encoded video data from a first tuner of said plurality in a first buffer
 - selected from said at least one memory device; and,
 - contemporaneously decoding encoded video data derived from a second tuner selected from said plurality of tuners.
17. The method of Claim 13, wherein said step of decoding said stored encoded video data comprises re-ordering selected ones of said stored encoded video data to provide decoded data in a different image sequence.
18. The method of Claim 13, further comprising predicting a next video channel to be selected by a user, wherein said step of simultaneously storing encoded video data representing images of said plurality of video programs comprises storing encoded video data representing images corresponding to a video program conveyed on said predicted next video channel.
19. The method of Claim 18, wherein said step of predicting said next video channel comprises at least one of: (a) determining a user channel viewing history characteristics, (b) determining a user favored program/channel criteria, (c) determining user interface navigation commands, and (d) determining user interface sensory input data.
20. The method of Claim 19, wherein said viewing history characteristics comprise at least one of, (a) channel frequency of use data, and (b) channel last time of use data.

21. A method for predicting a next channel to be selected by a user in a digital video decoding system receiving packetized video data representing programs conveyed on a plurality of video channels, comprising the steps of:

5 collecting information for use in predicting a next channel selection, said information comprising at least one of, (a) predetermined user channel and program preference criteria, (b) predetermined user channel navigation patterns, and (c) user data entry device sensory data;

10 processing said collected information to identify a likely channel to be selected by a user based on a probability determination derived from said collected information;

15 adopting said identified channel within said plurality of video channels as said predicted next channel.